

A2 the optical information signal selected by said data selection circuit and converting it from parallel data to serial data. ~

REMARKS

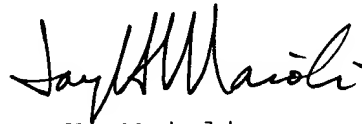
Claims 1-33 remain in the application and have been amended hereby.

As will be noted from the Declaration, Applicant is a citizen and resident of Japan and this application originated there.

Accordingly, the amendments to the specification are made to place the application in idiomatic English, and the claims are amended to place them in better condition for examination.

An early and favorable examination on the merits is earnestly solicited.

Respectfully submitted,
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE ABSTRACT OF THE DISCLOSURE

The Abstract of the Disclosure has been amended as follows:

--A receiving apparatus and transmitting apparatus capable of [reliably] transmitting and receiving a high speed optical signal and a communication system using the same, [wherein provision is made of] including a transmitting apparatus [comprising] having a conversion circuit for converting serially input data to a plurality of bits of parallel data given predetermined information and an LED array [comprised of LED units of at least] having a number of LED units corresponding to the number of bits of the parallel data from the conversion circuit arranged in an array, wherein the LED units are controlled in light emission in parallel based on bit information of corresponding parallel data to emit optical information [light] signals dispersed in a spatially predetermined range, and of a receiving apparatus having a [photo-diode array comprised of a] plurality of photo-diodes arranged in an array for emitting electric signals of levels in accordance with amounts of light received [arranged in an array], wherein the photo-diodes output electric signals in parallel, for selecting information in accordance with the optical information [light] signal based on the [plurality of] electric signals output in parallel from the photo-diode array, for converting the selected parallel data to serial

data, and for outputting the same.--

IN THE CLAIMS

Claims 1-33 have been amended as follows:

--1. (Amended) A receiving apparatus for receiving an optical information [light] signal, comprising:

a light receiving element array [comprised of] having a plurality of light receiving elements arranged in an array for outputting electric signals at levels [in accordance with] corresponding to amounts of light received [arranged in an array], wherein the light receiving elements output the electric signals in parallel; and

an information extraction circuit for receiving the plurality of electric signals output in parallel from [said] the light receiving element array and extracting information in accordance with [said] the optical information [light] signal based on the plurality of electric signals.

--2. (Amended) [A] The receiving apparatus as set forth in claim 1, further comprising an optical system for condensing the optical information [light] signal to a predetermined region of a light receiving region of [said] the light receiving element array.

--3. (Amended) [A] The receiving apparatus as set forth

in claim 2, wherein:

[said] the optical system is capable of adjusting a position of a light axis direction based on a control signal; and

[said] the information extraction circuit outputs [said] the control signal for adjusting [a] the position [in] of the light axis direction to [said] the optical system when information in accordance with [said] the optical information [light] signal cannot be extracted based on the plurality of electric signals.

--4. (Amended) [A] The receiving apparatus as set forth in claim 1, wherein a wavelength of [said] the optical information [light] signal is within a [wavelength included in a] visible wavelength range.

--5. (Amended) [A] The receiving apparatus as set forth in claim 1, wherein [said] the optical information [light] signal includes [a plurality of] information corresponding to bits of a plurality of bits of parallel data and is dispersed in a spatially predetermined range.

--6. (Amended) [A] The receiving apparatus as set forth in claim 2, wherein [said] the optical information [light] signal includes [a plurality of] information corresponding to bits of parallel data of a plurality of bits and is dispersed in a spatially predetermined range.

--7. (Amended) [A] The receiving apparatus as set forth in claim 3, wherein [said] the optical information [light] signal includes [a plurality of] information corresponding to bits of parallel data of a plurality of bits and is dispersed in a spatially predetermined range.

--8. (Amended) [A] The receiving apparatus as set forth in claim 4, wherein [said] the optical information [light] signal includes [a plurality of] information corresponding to bits of parallel data of a plurality of bits and is dispersed in a spatially predetermined range.

--9. (Amended) [A] The receiving apparatus as set forth in claim 5, wherein [said] the information extraction circuit comprises:

a binarizing circuit for binarizing the plurality of electric signals from [said] the light receiving element array;

a data selection circuit for selecting data corresponding to [said] the optical information [light] signal from the plurality of binarized [data] electric signals from [said] the binarizing circuit; and

a conversion circuit for decoding data corresponding to the optical information [light] signal selected by the data selection circuit and converting it from parallel data to serial data.

--10. (Amended) [A] The receiving apparatus as set forth in claim 6, wherein [said] the information extraction circuit comprises:

a binarizing circuit for binarizing the plurality of electric signals from [said] the light receiving element array;

a data selection circuit for selecting data corresponding to [said] the optical information [light] signal from the plurality of binarized [data] electric signals from [said] the binarizing circuit; and

a conversion circuit for decoding data corresponding to the optical information [light] signal selected by the data selection circuit and converting it from parallel data to serial data.

--11. (Amended) [A] The receiving apparatus as set forth in claim 7, wherein [said] the information extraction circuit comprises:

a binarizing circuit for binarizing the plurality of electric signals from [said] the light receiving element array;

a data selection circuit for selecting data corresponding to [said] the optical information [light] signal from the plurality of binarized [data] electric signals from [said] the binarizing circuit; and

a conversion circuit for decoding data corresponding to the optical information [light] signal selected by the data

selection circuit and converting it from parallel data to serial data.

--12. (Amended) [A] The receiving apparatus as set forth in claim 8, wherein [said] the information extraction circuit comprises:

a binarizing circuit for binarizing the plurality of electric signals from [said] the light receiving element array;

a data selection circuit for selecting data corresponding to [said] the optical information [light] signal from the plurality of binarized [data] electric signals from [said] the binarizing circuit; and

a conversion circuit for decoding data corresponding to the optical information [light] signal selected by the data selection circuit and converting it from parallel data to serial data.

--13. (Amended) A transmitting apparatus, comprising:

a conversion circuit for converting serially input data to a plurality of bits of parallel data [respectively] giving predetermined information; and

a light emitting diode array [comprising] having a number of light emitting diode units [of at least a number] corresponding to [the] a number of bits of parallel data from [said] the conversion circuit arranged in an array, wherein the respective light emitting diode units are controlled in

light emission in parallel based on bit information of [said] the corresponding parallel data to emit an optical information [light] signal dispersed in a spatially predetermined range.

--14. (Amended) [A] The transmitting apparatus as set forth in claim 13, wherein a wavelength of [said] the optical information [light] signal is within a [wavelength included in a] visible wavelength range.

--15. (Amended) A communication system, comprising:
a transmitting apparatus for transmitting an optical information [light] signal; and

a receiving apparatus including a light receiving element array [comprising] having a plurality of light receiving elements arranged in an array for outputting electric signals at levels [in accordance with] corresponding to amounts of light received [arranged in an array], wherein the [respective] light receiving elements output electric signals in parallel, and an information extraction circuit for receiving a plurality of electric signals output in parallel from [said] the light receiving element array and extracting information in accordance with [said] the optical information [light] signal based on the plurality of electric signals.

--16. (Amended) [A] The communication system as set forth in claim 15, wherein [said] the receiving apparatus comprises an optical system for condensing the optical

information [light] signal to a predetermined region of a light receiving region of [said] the light receiving element array.

--17. (Amended) [A] The communication system as set forth in claim 16, wherein:

[said] the optical system is capable of adjusting a position of a light axis direction based on a control signal; and

[said] the information extraction circuit outputs [said] the control signal for adjusting [a] the position of the light axis direction to [said] the optical system when information in accordance with [said] the optical information [light] signal cannot be extracted based on the plurality of electric signals.

--18. (Amended) [A] The communication system as set forth in claim 15, wherein a wavelength of the optical information [light] signal transmitted by said transmitting apparatus is within a [wavelength included in a] visible wavelength range.

--19. (Amended) [A] The communication system as set forth in claim 15, wherein the optical information [light] signal transmitted by [said] the transmitting apparatus includes [a plurality of] information corresponding to bits of a plurality of bits of parallel data and is dispersed in a

spatially predetermined range.

--20. (Amended) [A] The communication system as set forth in claim 16, wherein the optical information [light] signal transmitted by [said] the transmitting apparatus includes [a plurality of] information corresponding to bits of a plurality of bits of parallel data and is dispersed in a spatially predetermined range.

--21. (Amended) [A] The communication system as set forth in claim 17, wherein the optical information [light] signal transmitted by [said] the transmitting apparatus includes [a plurality of] information corresponding to bits of a plurality of bits of parallel data and is dispersed in a spatially predetermined range.

--22. (Amended) [A] The communication system as set forth in claim 18, wherein the optical information [light] signal transmitted by [said] the transmitting apparatus includes [a plurality of] information corresponding to bits of a plurality of bits of parallel data and is dispersed in a spatially predetermined range.

--23. (Amended) [A] The communication system as set forth in claim 19, wherein [an] the information extraction circuit of [said] the receiving apparatus comprises:

a binarizing circuit for binarizing [a] the plurality of

electric signals from [said] the light receiving element array;

a data selection circuit for selecting data corresponding to [said] the optical information [light] signal from the plurality of binarized [data] electric signals from [said] the binarizing circuit; and

a conversion circuit for decoding data corresponding to the optical information [light] signal selected by said data selection circuit and converting it from parallel data to serial data.

--24. (Amended) [A] The communication system as set forth in claim 20, wherein [an] the information extraction circuit of [said] the receiving apparatus comprises:

a binarizing circuit for binarizing [a] the plurality of electric signals from [said] the light receiving element array;

a data selection circuit for selecting data corresponding to [said] the optical information [light] signal from the plurality of binarized electric signals data from [said] the binarizing circuit; and

a conversion circuit for decoding data corresponding to the optical information [light] signal selected by said data selection circuit and converting it from parallel data to serial data.

--25. (Amended) [A] The communication system as set

forth in claim 21, wherein [an] the information extraction circuit of [said] the receiving apparatus comprises:

a binarizing circuit for binarizing [a] the plurality of electric signals from [said] the light receiving element array;

a data selection circuit for selecting data corresponding to [said] the optical information [light] signal from the plurality of binarized [data] electric signals from [said] the binarizing circuit; and

a conversion circuit for decoding data corresponding to the optical information [light] signal selected by said data selection circuit and converting it from parallel data to serial data.

--26. (Amended) [A] The communication system as set forth in claim 22, wherein [an] the information extraction circuit of [said] the receiving apparatus comprises:

a binarizing circuit for binarizing [a] the plurality of electric signals from [said] the light receiving element array;

a data selection circuit for selecting data corresponding to [said] the optical information [light] signal from the plurality of binarized [data] electric signals from [said] the binarizing circuit; and

a conversion circuit for decoding data corresponding to the optical information [light] signal selected by said data selection circuit and converting it from parallel data to

serial data.

--27. (Amended) A communication system, comprising:

a transmitting apparatus [comprising] having a conversion circuit for converting serially input data to a plurality of bits of parallel data [respectively] giving predetermined information and a light emitting diode array [comprising] having a number of light emitting diode units [of at least a number] corresponding to [the] a number of bits of parallel data from [said] the conversion circuit arranged in an array, wherein the respective light emitting diode units are controlled in light emission in parallel based on bit information of [said] the corresponding parallel data to emit an optical information [light] signal dispersed in a spatially predetermined range; and

a receiving apparatus including a light receiving element array [comprised of] having a plurality of light receiving elements arranged in an array for outputting electric signals at levels [in accordance with] corresponding to amounts of light received [arranged in an array], wherein the [respective] light receiving elements output electric signals in parallel, and an information extraction circuit for receiving a plurality of electric signals output in parallel from [said] the light receiving element array and extracting information in accordance with [said] the optical information [light] signal based on the plurality of electric signals.

--28. (Amended) [A] The communication system as set forth in claim 27, wherein [said] the receiving apparatus comprises an optical system for condensing the optical information [light] signal to a predetermined region of a light receiving region of [said] the light receiving element array.

--29. (Amended) [A] The communication system as set forth in claim 28, wherein:

[said] the optical system is capable of adjusting a position of a light axis direction based on a control signal; and

[said] the information extraction circuit outputs [said] the control signal for adjusting [a] the position of the light axis direction to [said] the optical system when information in accordance with [said] the optical information [light] signal cannot be extracted based on the plurality of electric signals.

--30. (Amended) [A] The communication system as set forth in claim 27, wherein a wavelength of an information light transmitted by said transmitting apparatus is within a [wavelength included in a] visible wavelength range.

--31. (Amended) [A] The communication system as set forth in claim 27, wherein [an] the information extraction circuit of [said] the receiving apparatus comprises:

a binarizing circuit for binarizing [a] the plurality of electric signals from [said] the light receiving element array;

a data selection circuit for selecting data corresponding to [said] the optical information [light] signal from the plurality of binarized [data] electric signals from [said] the binarizing circuit; and

a conversion circuit for decoding data corresponding to the optical information [light] signal selected by said data selection circuit and converting it from parallel data to serial data.

--32. (Amended) [A] The communication system as set forth in claim 28, wherein [an] the information extraction circuit of [said] the receiving apparatus comprises:

a binarizing circuit for binarizing [a] the plurality of electric signals from [said] the light receiving element array;

a data selection circuit for selecting data corresponding to [said] the optical information [light] signal from the plurality of binarized [data] electric signals from [said] the binarizing circuit; and

a conversion circuit for decoding data corresponding to the optical information [light] signal selected by said data selection circuit and converting it from parallel data to serial data.

--33. (Amended) [A] The communication system as set forth in claim 29, wherein [an] the information extraction circuit of [said] the receiving apparatus comprises:

a binarizing circuit for binarizing [a] the plurality of electric signals from [said] the light receiving element array;

a data selection circuit for selecting data corresponding to [said] the optical information [light] signal from the plurality of binarized [data] electric signals from [said] the binarizing circuit; and

a conversion circuit for decoding data corresponding to the optical information [light] signal selected by said data selection circuit and converting it from parallel data to serial data.--